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GEOGRAPHICAL RECORD

AMERICAN GEOGRAPHICAL SOCIETY

Monthly Meeting of November. The first regular monthly meeting of the American Geographical Society was held on Tuesday evening, November 19, at the Engineering Societies' Building, 29 West Thirty-ninth Street. President Greenough presided. He submitted for confirmation the names of 293 candidates for Fellowship, each of whom had been approved by the Council, and they were confirmed as Fellows of the Society. Thereupon Professor Bailey Willis of Leland Stanford Junior University, California, addressed the Society on "The Physical Basis of National Development." The address dealt with the development of nations as conditioned by the physical nature of their domain. Many examples, both from the Old World and the New, were cited to support the thesis. Particular attention was given to the topic from the point of view of peace problems.

NORTH AMERICA

The Minnesota Forest Fire of October 12-15, 1918. One of the most disastrous forest fires in the history of the country raged in northeastern Minnesota during October 12 and 13, 1918, and continued in secondary waves throughout the two following days. Fires originated in numerous places within an area of about 15,000 square miles, an area larger than that of Belgium by 4,000 square miles. From 1,200 to 1,500 people perished, and hundreds more were wounded. Although the entire region was not devastated, it seems that few square miles of the timbered portions were untouched. In some townships every farm was completely wiped out.

Cloquet, a city of 7,500 inhabitants, headquarters for one of the largest white pine lumber companies in the United States, was wiped out with the exception of a few industries along the St. Louis River. Many smaller towns and settlements were completely destroyed. The outskirts of the "East End" of Duluth were severely damaged, about three hundred houses having burned. Those who were members of the American Geographical Society's Transcontinental Excursion of 1912 will recall the attractive Northland Country Club, where they were entertained at luncheon. The main house and the beautiful evergreen-birch woods for miles around are now things of the past. Two large lumber companies on St. Louis Bay, opposite the heart of the city, were destroyed as well as the approaches to the Interstate Bridge connecting Duluth and Superior in Wisconsin.

There are those who point to incendiarism as the cause of the fire, although small fires had been burning here and there for several days. The frequency of brush fires during the Fall season has developed a certain amount of indifference toward them in spite of the fact that all that is needed to make them serious at any time is a strong wind from the right direction. The conditions this year were highly propitious for the rapid spread of the fires. The territory experienced the driest season in the history of the local Weather Bureau. The secondary rain maximum, which occurs regularly in September (the primary occurs in June), failed to set in and was preceded by an exceptionally dry summer, thereby causing an unprecedented dryness of underbrush and timber. A wind reaching about 40 miles an hour during the afternoon of October 12 fanned the flames into sheets of fire. At 5 P. M. the wind suddenly rose to 60 miles an hour, "falling again to about 40 miles after 9 P. M." This sudden rise in velocity was undoubtedly due to the local reduction in pressure established by the overheating of the atmosphere, as a consequence of the fiercely burning pitch in the dry pine, spruce, and tamarack woods. The circulation of air locally took on a cyclonic character, although under the general control of an anticyclone at the time. The fires were intensified and their devastating powers increased many fold. The maximum damage was done at this time. Winds of such high velocity occurred nowhere else in the rest of the state nor the surrounding states, nor did the barometric gradients on the weather map of that morning give any indication of possible high winds. With the subsidence of the local "whirl," the wind moderated and turned to the northeast, saving Duluth, Two Harbors, and probably Superior, important shipping points for most of the iron ore being utilized in the manufacture of munitions and steel products.

The fire having in the main exhausted itself after about five days of intermittent fierce and moderate blazing, rooted itself in the extensive peat swamps (muskeg). This

is an added serious loss, for these swamps burn slowly and deeply, after which their fertility is considerably reduced, excepting for the first year or two immediately after the burning. Subsequently heavy fertilizer will be necessary, making crop cultivation expensive.

While the tremendous losses in human lives and material property are most lamentable and can never be recovered, such a catastrophe is not without its ray of hope. The present settlers are pioneers. Their struggle has been one of continued sacrifices, leading a way for those who will eventually reap the profitable harvests. The clearing of the land has presented the greatest obstacle, especially because of the dense under-

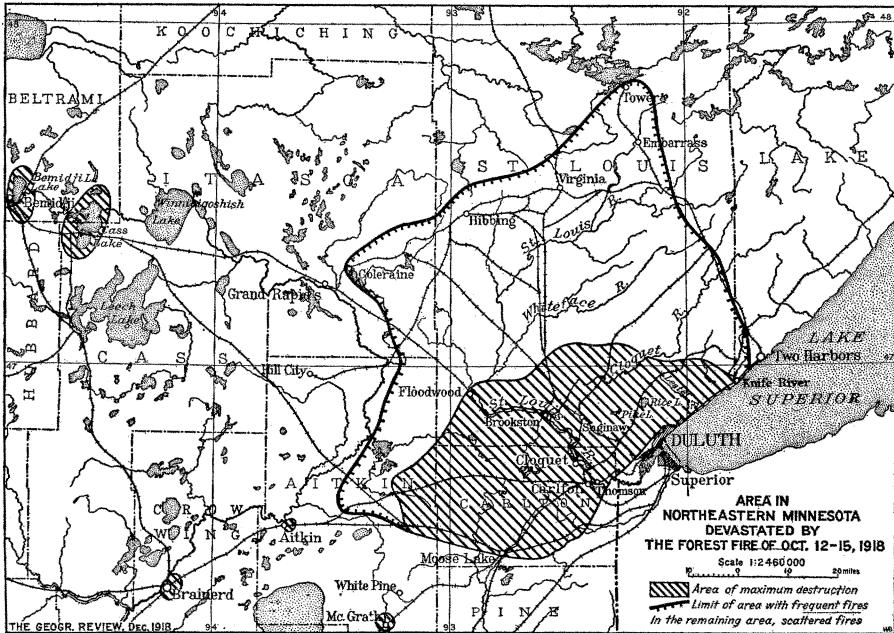


FIG. 1—Sketch map showing area devastated in Minnesota forest fire of Oct. 12-15, 1918. 1:2,460,000.

brush. No people have ever fought more valiantly against the adversities in Nature's domains than the Scandinavians and Finns of northeastern Minnesota. And now the small fruits of their fifteen or twenty years' struggle have been taken from them. Yet, they will return to start the work over again. The fires will have aided them in the further clearing of the land, and for this some thanks may be offered. The hardships of the future will be mitigated somewhat. Next year the beautiful fireweed with its nectar-filled pink blossoms will rise as if by magic and supply the honey bees with rich sweets. Those who are wise enough to engage in bee-keeping will earn a large reward. Then too, the unexcelled, pink and white, wild clover will come in slowly, returning in strength within two or three years, to give the newly purchased milch cows the nourishment which makes them profitable. Sheep will have enough to nibble on at the outset, and even hogs may thrive. The region is destined to be a dairy and sheep land, and the time when it will come into its full fruitage will soon be at hand in spite of and even with the help of the depressing fires.

EUGENE VAN CLEEF

A Recent Dust Fall and Its Origin. In the *American Journal of Science* for October, 1918 (pp. 599-609), there appears the account of a dust fall in which unusually favorable opportunities were offered and taken advantage of for the study of what is a rather common but little understood occurrence. Thanks to the promptness and care exercised by the observers, Messrs. A. N. Winchell and E. R. Miller, at Madison, Wis., we have what seems to be an excellent record of this dust fall, not only as to the nature of the material deposited and the area covered, with an estimate of the total amount precipitated, but, more important still, as to the course probably followed by the dust particles and a plausible hypothesis concerning the source and circumstances of its origin.

Dust was noted in the moist snow and sleet which fell on March 9, 1918, in Iowa, Wisconsin, Upper and Lower Michigan, and as far east as Vermont, covering an area of at least 100,000 square miles. The observers calculated that not less than a million tons of organic and inorganic material fell, and probably many times that amount. The particles consisted chiefly of feldspar, quartz, opal, limonite, and other inorganic matter, but there were also bits of plant tissue.

Search for the origin of the dust was facilitated by the facts that a snow cover lay over the country to the north and that rain had fallen in many localities during preceding days. A map shows the areas thus eliminated as probable sources. A well-defined cyclonic disturbance was moving across the continent, having entered northern California on March 7. This led to an investigation of meteorological conditions in the arid regions of the Southwest, particularly in New Mexico and Arizona, where are located large areas of siliceous feldspathic rock. It was learned that strong convectional currents had prevailed there on March 5, raising dust storms so severe as to cause much discomfort at the military camps. From a study of air currents as given by the Weather Bureau the investigators conclude that an enormous quantity of dust must have been eroded from these arid regions, lifted into the upper atmosphere, and carried with the storm a thousand miles or more to the northeast, where it was brought down by the snow and sleet which had formed at a great altitude in the air.

Length of the Growing Season in Kentucky. The dates of the last killing frost in spring, of the first killing frost in autumn, and of the length of the growing season in Kentucky have been studied by Professor F. J. Walz of the U. S. Weather Bureau Office at Louisville, Ky. (*Monthly Weather Rev.*, Vol. 45, 1917, pp. 348-353). The records of the regular stations of the Weather Bureau and those of co-operative stations with twenty years or more of record have been examined and analyzed, and mathematical methods used in the investigation of statistics and probabilities have been employed. The average dates of first and last killing frost, the average number of days in the growing season, and the standard deviations from these averages have been computed for each station, and the consequent risks or probabilities determined. This study is one of the rapidly increasing series of similar investigations into the meteorological risks with which our farmers are every year confronted. Every such discussion makes scientific agriculture more of a reality.

R. DEC. WARD

EUROPE

Regional Consciousness and Nationality in Western Europe. In a posthumous article, "Regional Environment, Heredity, and Consciousness" (*Geogr. Teacher*, Vol. 8, 1915-16, pp. 147-153), Professor Herbertson stated his belief in the fundamental nature of geography: "For the understanding of history, or economics, or politics, or any study of mankind, it is necessary (i) to realize that the wholes which are greater than the individual are geographical, (ii) to grasp the idea of a region and the need for a feeling of regional consciousness." And regarding regional consciousness Herbertson goes on to say: "There is a *genius loci* as well as a *Zeitgeist*—a spirit of a place as well as of a time. . . . The spirit of a place changes with the spirit of the time; it alters with man's relation to the region; . . . the geographer has to consider both in trying to understand the present regional consciousness." Here we find the keynote to a recent admirable work by Dr. H. J. Fleure, a follower and exponent of the school of regional geography to which Herbertson contributed so greatly (*Human Geography in Western Europe: A Study in Appreciation*, in series "The Making of the Future," edited by Patrick Geddes and Victor Branford, Williams and Norgate, London, 1918). In the preface Dr. Fleure defines his object as "an attempt to appreciate the *genius loci* of some of the human groups which have become accustomed to live and act as such in Western Europe." To throw light from a new angle on that part of the world geographically most complex—the lands dealt with are those of the Romance and German languages in Western Europe—must necessarily be, as the author himself recognizes, tentative and suggestive—but the suggestions are many and fruitful.

Starting with the concept that man is not the mere creature of circumstance but in the possession of a certain power to mold his environment and thus shape his own destiny, the Human Zones and Regions are worked out according to their response to man's endeavor. (A broad world classification on this basis is made by the same author in the article "Régions humaines," *Annales de Géogr.*, Vol. 26, 1917, pp. 161-174.) Thus, following an outline of the three great structural, climatic, and ethnic zones of Western Europe, we are presented with a brief description of the Zone of Difficulty of the highland core, where the land has "to a large extent refused sensible increment, even to hard and prolonged effort"; the Zone of Increment of the Mediterranean Basin, where a

favoring climate and other advantageous circumstances yielded an early response and a moderate and steady return to man's labor; the Zone of Effort, the northern slopes from the highland belt, originally densely forested, only yielding slowly to permanent human settlement. The zones, however, are not areas of definite boundary; they are transitional in both time and space. Emphasis is laid on their transitional character—a point of supreme importance in any study that involves treatment of frontiers. Troubles have repeatedly arisen from the failure to appreciate the existence of transitional regions: Germany's attempt to force Lorraine violently from its historic intermediate position is a case in point. Furthermore the transitional region, because it is characteristically a meeting place of men and their products, has unique possibilities for the acquisition of wealth, material and spiritual. France, where the mountain zone dies down and northern and southern belts meet, is a transition region on a great scale. Races and influences have here met and mingled to a remarkable degree, and it is here that we may find "the best answer to theories of the super-man and the super-race." On the contrary it is the tragedy of Germany that her traditionally rich and cultured transition zone of the southern valleys should have been dominated by the *nouveau-riche* North German Plain.

Analysis of the zones and regions is followed by a series of "short sketches of the interweaving of relations between man and his environment" in the human groups into which they fall. The sketch of the wonderful rich and varied weavings that have gone to make the fair fabrie of France was published in the *Scottish Geographical Magazine*, for November, 1916, under the title "France: A Regional Interpretation" (abstracted in the *Geogr. Rev.*, Vol. 3, 1917, p. 150). A part of the chapter "From the Alps to the Northern Seas" was treated in a previous article entitled "Berlin and Its Region" (abstracted in the *Geogr. Rev.*, Vol. 3, 1917, pp. 399-401). The Iberian peninsula and Italy also have chapters to themselves, and there is one on "The Small Peoples." Independence of the small peoples is defended on the ground of the valuable and distinctive contributions that they have made to civilization. Consideration of these small units, Denmark, Holland, Flanders, Wallony, Luxemburg, Lorraine, Alsace, Switzerland, and Bohemia, that together (with Poland) wind round Germany, leads to the much pro-pounded question of what constitutes a nation. Here is no definition, for no absolute criterion can be found, but there is a very interesting statement of favorable factors. "If a moderate-sized group has a common language with a rich spiritual tradition gathering round it, that group will always strive to keep its individuality." It is noteworthy too that racial unity in detail is regarded as a possible weakness: rather is it an advantage for a nation to include "a rich and intimate mixture of races for its own spiritual strength, and also, be it added, in order to promote mutual understanding with its neighbors." Such mixtures, however, as in the case of France and Britain, are the fortunate happenings of the past.

The last chapter in the book concerns Great Britain, and the final thought is of Britain as a link between the Old and New Worlds, "in co-operation with the European continent behind us and the immense human opportunities of the Americas in front."

Recent Oceanographic Investigations in Spanish Waters. Though conditions during the past few years have seriously interrupted plans made by the International Oceanographic Commission created in 1914 by the countries of southern Europe, Spain has continued her part of the enterprise in so far as the circumstances permitted. Brief accounts of this work have appeared from time to time in the *Revista de Geografía Colonial y Mercantil*, published by the Royal Geographical Society of Madrid (Vol. 12, 1915, pp. 199-200; Vol. 13, 1916, pp. 81-121; Vol. 14, 1917, pp. 361-371; Vol. 15, 1918, pp. 248-251).

Explorations were initiated by the Instituto Español de Oceanografía in the *Vasco Nuñez de Balboa*, which carried on investigations along the Mediterranean shores of Spain and in the environs of the Balearic Islands. A year later work was begun on the northern coast. In 1917 operations were limited to the waters of the Ría de Vigo. The summer of 1918 was devoted to study of the coast from Santander to the Miño (Minho), the northern boundary stream between Spain and Portugal. Here a small gunboat, the *Hernán Cortés*, was employed in the explorations. This series of studies has brought under examination sharply contrasted regions, the calm, warm, almost tideless waters of the Mediterranean, with a scanty rainfall on its coasts, and the tempestuous *ria* coast of the northwest, where strong tides, heavy precipitation, and the consequent erosion of wave and stream produce conditions strikingly different.

Particular attention has been given to the economic phase of the study, with a hope of being able to augment the gradually diminishing food supply obtained from the Spanish fisheries. In this work, carried on by the Instituto Español de Oceanografía

under the direction of Señor Odón de Buen, the government has lent its encouragement and active support.

When more settled conditions are established it is to be hoped that the nations about the Mediterranean will resume their co-operative efforts and accomplish there what the countries of northern Europe have done in the International Commission for the Scientific Investigation of the North Sea. With the aid of the celebrated Oceanographical Museum of Monaco, the Institut Océanographique at Paris, and the efficient Regio Comitato Talassografico Italiano, created in 1910 (on whose activities consult Giovanni Magrini: The Objects and Work of the Royal Italian Oceanographic Committee, 118 pp., *Memorial* [i. e. *Mémoire*] 21, Venice, 1916; and L. Joubin: Le Comité Thalassographique Italien et la station de Messine, *Annales de Géogr.*, March, 1918, pp. 81-91) valuable contributions to our knowledge of the Mediterranean may be expected.

Weather Controls in the War. Present-day warfare emphasizes the relation between meteorological conditions and human activities. The employment of great masses of men in co-ordinated operations out of doors reveals how important are weather controls upon their movements. The weather then ceases to be considered simply as a question of relative comfort. It becomes of vital significance. The extensive use of gas as a weapon and the great development of air fighting have added new aspects to the dependence upon the condition of the elements. Meteorology has become an essential branch of military science.

Professor R. DeC. Ward, in the series of articles listed below, presents data collected from reports, official and unofficial, during the whole course of the war, and upon most of the battle fronts, showing how weather has affected the outcome of engagements. Rain, snow, ice, frosts, floods, wind direction and velocity, drought, temperature, fog, cloud, thunder squalls, sand storms, humidity of the atmosphere, even mirage are shown to have played a part in the war.

This fact being recognized, each side employed a large corps of meteorologists upon whose forecasts the armies and navies depended for their operations. Germany, cut off from the possibility of using observations taken in other lands, is said to have utilized her submarines as weather stations upon whose reports, sent in by wireless messages, forecasts were based.

Not only the weather from day to day became a matter of study, but the more general climatic conditions as well. A knowledge of the climatology of Palestine, Mesopotamia, Siberia, the Murman coast, or of the German colonies in Africa and the Pacific was recognized as necessary in the preparation for campaigns in those sections.

The value of this series of papers is enhanced by the fact that they offer, we believe, the first thorough treatment of the subject of weather controls as observed during the whole course of the war. They appear in the following journals: *Popular Science Monthly*, Vol. 85 (1914), pp. 604-613; *Journ. of Geogr.*, Vol. 13 (Feb. 1915), pp. 169-171; (March 1915), pp. 209-216; Vol. 14 (Nov. 1915), pp. 71-76; (June 1916), pp. 373-384; Vol. 15 (Nov. 1916), pp. 79-86; (April 1917), pp. 245-251; Vol. 16 (Oct. 1917), pp. 47-51; (Nov. 1917), pp. 86-90; (April 1918), pp. 291-300; *The Scientific Monthly*, Vol. 6 (Feb. 1918), pp. 97-105; (April 1918), pp. 289-304; Vol. 7 (July 1918), pp. 24-33; (Oct. 1918), pp. 289-298.

GEOGRAPHICAL NEWS

PERSONAL

PROFESSOR HENRY C. COWLES of the University of Chicago lectured on November 8 before the Geographic Society of Chicago on "Forests and Forest Policies in Illinois."

DR. GEORGE B. GRINNELL addressed the American Ethnological Society at the American Museum of Natural History on November 25 on "The Cheyenne as Indian Traders."

DR. STEPHEN S. VISHER, recently land classifier in the U. S. Geological Survey, as announced in the April, 1918, *Review*, has been appointed to an assistant professorship in geography at the University of Indiana dating from January 1, 1919. Dr. Visher's paper on "The Biogeography of the Northern Great Plains," in the *Review*, Vol. 2, 1916, pp. 89-115, will be recalled.